RESPONSE TO ACTS OF TERRORISM AT STADIUM FACILITIES

Leading Community Risk Reduction

Philadelphia Fire Department Response to

Acts of Terrorism at Stadium Facilities

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

The problem is that the Philadelphia Fire Department (PFD) does not currently have a standard operational guideline (SOG) for responding to terrorist incidents at stadium facilities. By not having a SOG, responding units and personnel are subject to elements of confusion thus limiting their effectiveness at these types of incidents. The purpose of this research was to develop a SOG in the PFD for the response to acts of terrorism in stadium facilities. The action research method was utilized to answer questions about; (a) What information is necessary to plan a strategy for PFD personnel responding to terrorist incidents at stadium facilities? (b) What conditions are likely to confront PFD personnel at stadium facilities terrorist incidents? (c) What resources are necessary for the proper mitigation of these incidents? This research identified the need for a SOG and one was developed based on the research data available.

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Philadelphia Fire Department Response to Acts of Terrorism at Stadium Facilities

The city of Philadelphia has, within its borders, many large stadium facilities. These stadiums can attract a large transient population at any given time. Stadiums are considered a prime target for acts of terrorism due to the large number of people involved and the high profile nature of such an attack (Paxton, 2005). Without a plan for protecting these people from the effects of a terrorist attack the municipality places them under great risk (Ledlow, 2005).

The Philadelphia Fire Department (PFD) currently does not currently have a standard operational guideline (SOG) for responding to terrorist incidents at stadium facilities. The problem is that by not having a SOG, responding units and personnel are subject to elements of confusion thus limiting their effectiveness at these types of incidents.

The purpose of this research was to develop a SOG in the PFD for the response to acts of terrorism in stadium facilities. The action research method, consisting of a literature review, interviews, and personal observations was utilized to answer the following research questions; (a) what information is necessary to plan a strategy for PFD personnel responding to terrorist incidents at stadium facilities?, (b) what conditions are likely to confront PFD personnel at stadium facilities terrorist incidents? and (c) what resources are necessary for the proper mitigation of these incidents?

Background and significance

The City of Philadelphia, which encompasses 135 square miles, is the largest city in the Commonwealth of Pennsylvania (United States Census Bureau [USCB], 2000). The estimated population of the City of Philadelphia is 1,517,550 (USCB, 2000).

The Philadelphia Fire Department (PFD) consists of 2,400 uniformed employees who are sworn to protect the public by providing efficient and professional fire suppression services,

emergency medical services, fire prevention services, and hazardous materials enforcement and mitigation services within the city limits (Philadelphia Home Rule Charter, 1952). In addition to these local services the City of Philadelphia has entered into mutual aid agreements with all of its surrounding counties and provides personnel to the Pennsylvania Urban Search and Rescue Task Force to provide services to other municipalities during emergencies upon request.

The Philadelphia Home Rule Charter (1952) provides for a fire commissioner and two deputy commissioners each appointed by the mayor to oversee the operations of the PFD. The Deputy Commissioner of Staff Services oversees the units charged with administrative support functions for the field units. The Deputy Commissioner of Operations oversees the field units charged with the response and mitigation of emergencies. The city is geographically broken down into two separate divisions, which are further subdivided into eleven battalions.

Division and battalion chiefs respond to fires and incidents of a predetermined severity in their local districts based on the availability of other units. They assume command of the incident until relieved by a superior officer.

The increased use of hazardous materials and the ever present threat of terrorism and natural and man-made disasters have placed a greater importance on the planning process and the subsequent responsibilities, mandated by the federal government in the Homeland Security Presidential Directive 5 (HSPD-5), for these types of incident have forced the PFD to consider response planning outside of the city limits.

There are several smaller stadium facilities located on the campuses of college and universities throughout the city. The main concentration of professional sports stadiums is located at the southeast end of the city in an area referred to as the Sports Complex. The Sports Complex consists of four major stadiums; Lincoln Financial Field, Citizens Bank Park, the

Wacovia Center, and the Wacovia Spectrum. Lincoln Financial Field is home to the Philadelphia Eagles professional football team and is sometimes used for large outdoor concerts. It has a seating capacity of 68,000 people (Lincoln Financial, 2007). Citizens Bank Park is home to the Philadelphia Phillies professional baseball team and has a seating capacity of 43,500 people (Citizens Bank, 2007). The Wacovia Center is home of the Philadelphia Sixers professional basketball team and the Philadelphia Flyers professional hockey team. It has a maximum capacity of 21,600 people (Wikipedia, 2007). The Wacovia Spectrum is used for several minor league indoor sports and concert events. Its seating capacity is 18,500 people (Wikipedia, 2007). At any given time in the city of Philadelphia there is a large concentration of people in these stadium facilities.

This applied research has been conducted as a requirement for the National Fire Academy Executive Development course. The problem is that the Philadelphia Fire Department (PFD) does not currently have a standard operational guideline (SOG) for responding to terrorist incidents at stadium facilities. By not having a SOG, responding units and personnel are subject to elements of confusion thus limiting their effectiveness at these types of incidents. This research relates to the United States Fire Administration (USFA) operational objective to promote within communities a comprehensive, multi-hazard risk reduction plan led by the fire service organization (United States Fire Administration, 2002).

Literature review

Terrorist attacks can happen at any time or at any place in the world. No society is safe from this threat. Anti-terrorism is usually considered to be a national security issue. Most of the national resources in the world are dedicated to the prevention of these incidents, but when

these incidents do occur it is up to the local authorities to initially handle the incident (Compton 2002). Fire Departments must be able to properly mitigate these incidents in order to minimize the effects on the area involved and the potential effects beyond the initial emergency scene (Compton, 2002).

According to Fire (1996), terrorists can employ several different mechanisms for attack. They can use biological, nuclear, incendiary, chemical, or explosive weapons to achieve their desired goals. Police, firefighters, military and medical personnel will most likely be the first to arrive on the scene of these types of incidents regardless of the method used. These emergency responders and others in emergency services who support them face new challenges that seriously imperil not only the public but those very persons whose job it is to protect and help the public. The risks faced today pose threats for which the average emergency responder may not be prepared (Manning, 1995). These threats go far beyond the usual ones associated with residential fires, vehicular accidents, or even hazardous materials incidents. It is critical that emergency responders understand the implications of these modern threats and know proper response procedures and the limits of safe and prudent response (Federal Emergency Management Agency [FEMA], 1999). This knowledge will help prevent further fatalities. Injured or incapacitated responders are no help to anyone.

With the incorporation of emergency medical services and hazardous material mitigation into many fire departments around the country, including the PFD, fire department personnel will most likely be the first to arrive on the scene of these types of incidents regardless of the method used (FEMA, 1993).

Massa (1995) has identified several common factors that must be addressed in order to ensure that there is a positive outcome to the incident. Before the incident occurs, a pre-incident analysis must be completed. Each department that might respond to an incident must

conduct pre-planning in order to identify possible targets such as; government installations, utilities, public assemblies, public buildings, mass transit systems, places of economic impact, communication facilities, places of historical or symbolic significance, and special events (Massa, 1995). A viable SOG must also be drafted and this procedure should incorporate resources available from the government, military, public health, and law enforcement agencies (Bahme, 1992). Proper training is necessary to implement these procedures and identify the proper protective clothing and equipment required (Bartlett, 2005).

Personnel responding must begin to gather information and process this information for its importance regarding the incident. This process must continue throughout the duration of the incident. The key will be to recognize the hazards present in this type of incident and communicate this information to arriving units and the communication center (Stuebe, 1998). Clues such as the number and condition of the victims present should identify the type of incident involved (Stewart, 2006). The incident may consist of a combination of several incidents in one. It may be a mass casualty incident, hazardous material incident, bomb threat, explosion, building collapse, fire or a hostage situation separately or simultaneously (Stuebe, 1998). After arrival on the scene and completion of the first phase of size up, the incident commander must develop a strategy and an action plan. The strategy must prioritize for life hazards, stabilization, property protection, and safety. The strategy developed must constantly be re-evaluated in terms of effectiveness and a risk analysis.

The manpower available on the initial response and the availability of proper protective clothing and equipment will be critical factors in developing a mitigation plan (USFA, 1998). It may be necessary to await the arrival of additional resources before you can attempt to enter the hazardous area (USFA, 1998). Once this plan is developed it must be promptly and clearly

communicated to arriving companies.

Normal mediums of communication may not be possible if explosives are suspected. For example, portable radios and cell phones operate on frequencies that can trigger a detonation and therefore should be turned off for at least a distance of 500 feet from a suspected device (Stewart, 2006). Control will be difficult at best due to the conditions experienced. Regardless, control is essential. Give specific orders to limit confusion and to prevent freelancing and have the orders repeated back to ensure understanding. Available resources must be managed effectively and assistance must be requested promptly because terrorist incidents will be manpower intensive incidents. A thorough knowledge of available equipment is essential. Both the incident commander and the communication center must be aware of the proper agencies that must be notified. Notification must be according to a predetermined procedure. In the United States, this chain of events is outlined in Presidential Decision Directive 39 and the Disaster Relief and Emergency Assistance Act. Federal agencies are responsible for crisis management and local agencies are responsible for consequence management.

The command post must be in an area that is relatively close to the incident but not effected by the incident. It must be located in what would be the cold zone or outside the expected damage perimeter for an explosive (Stewart, 2006). This will be where communications are established and maintained; activities coordinated; feedback evaluated; and strategy and tactics modified or supplemented. It will also serve as a central location for the mustering of supervisors from other agencies (Manning, 1995). This will facilitate the coordination of activities for a multi-agency response.

An incident command or incident management system is required to handle such a complex incident. The functions (command, command staff, operations, logistics, finance, and

planning) will be activated as determined by the incident commander (FEMA, 1999). The incident commander will retain control of the functions not activated and maintain full accountability. Most likely on this type of incident all of the incident command functions will be activated. Incident commanders who usually do not activate some functions, such as logistics and planning, will find themselves overwhelmed by the complexity of these incidents (Compton, 2002).

The elements of the command staff function (safety, public information, and liaison) will be essential to the positive outcome of the incident (Hansen, 1995). A safety officer will help ensure that operations are conducted safely in accordance with the incident commander's plan. A public information officer will help the incident commander in communications with the news media to ensure that public warnings, emergency broadcasts, and vital emergency information is disseminated to avert more people from becoming exposed or avert a panic situation (Hansen, 1995). A liaison officer will be essential to help coordinate the activities of the many agencies responding.

The emergency scene must be divided into manageable sections of responsibility. The method used will depend on the type of incident involved. The typical zoning used for hazardous material responses will be effective for biological, nuclear, or chemical threats (Fire, 1996). For explosive or incendiary attacks a system utilizing an exclusion zone appropriate for the danger involved may be needed (Dittmar, 1998). Terrorists will go to great effort to ensure the desired impact is achieved. A sequence of events, carefully timed to also sabotage the response effort must always be considered. Secondary devices, booby traps, and armed resistance may be encountered (Dittmar, 1998).

The proper positioning of responding equipment and personnel is an important concern.

Traditionally the staging area is located in an area away from the dangers of the incident and is a mustering area for equipment and manpower (Salyers, 2007). At a terrorist incident an additional concern will be the threat of attack in these areas. The incident commander may need to use multiple staging areas to limit the threat of having all of the reserve manpower and equipment exposed to additional attacks (Bahme, 1992).

The rescue of affected individuals and the evacuation of individuals in close proximity will be manpower intensive and require a closely coordinated effort. It may not be feasible for the initial arriving companies to get heavily involved in rescue operations. It will be difficult at best to control the exodus of victims from the area involved but every effort must be employed to ensure that this is accomplished (Paxton, 2005). This could entail establishing an area of safe refuge for those contaminated, which will set the stage for subsequent medical treatment. The emergency decontamination process may be the single most important task that the public safety community can perform during a terrorist incident (Stephan, 2007). Depending on the exposure, an emergency decontamination station consisting of simple water lines used as showers to dilute the contaminate can be employed until more sophisticated decontamination procedures can be established (Scott, 2006). Police may be useful in the evacuation effort, but they typically do not have access to adequate training, protective clothing and equipment. A decision must be made whether or not to fully evacuate certain areas or to use a protect in place strategy (Salyers, 2007).

Evacuation from certain areas may cause more exposure to the dangerous condition. Civilians protected in buildings must be continually monitored to assess their safety level. A priority for removal of victims from the affected area must be established (Stuebe, 1998). Mobile victims should be directed away from the effected area and then to the evacuation and medical assessment areas. Initially, avoid committing valuable manpower to those that are not

ambulatory. The goal will be to get as many victims away from the area as soon as possible. Upon the arrival of additional manpower and equipment the effort can move towards removal of more critical non-ambulatory victims. The use of wheeled or skid stretchers will be invaluable because these stretchers can be kept in the hot zone and re-used for multiple patients without the need for decontamination after each use. This will result in reducing the amount of equipment dedicated to this evolution and save valuable time in the decontamination process. Once the area has been determined to be reasonably safe the operation will move towards the rescue of trapped individuals, and then towards a body retrieval effort. This effort is best accomplished by specialized units and supplemented by cadaver dogs (Paxton, 2005).

A specific procedure for the triage, treatment, and transport of victims at the scene of a mass casualty incident must be established and implemented prior to the response to such incidents (Bartlett, 2005). These regional plans must provide for a method to alert area hospitals so that they can prepare for incoming patients. After triage has been completed, areas for the treatment and collection of patients, and areas for the transportation of patients must be established. When establishing the transportation area consideration to helicopter access should be a factor (Ledlow, 2005). These incidents require precise coordination between units at the scene, employees at the communication center, and health care professionals at the hospitals. Information pertaining to the treatment already provided, and available resources at the hospitals will be critical to the well being of those affected (Bartlett, 2005). Areas should be dedicated to the rest and rehabilitation of the responders and they should be in a safe area and designated according to the prevailing weather conditions for warm up or cool down. Responders should also have access to food, fluids, and trained medical personnel should monitor their vital signs and assess their medical and mental condition (Moultrie, 1998).

Due to the fact that terrorist incidents are dynamic by nature, command of the incident may be transferred

between individuals having the authority in the same agency or between different agencies responding, depending on the changing conditions. The agency having command will be the lead agency. In most jurisdictions, such as the PFD, the local law enforcement agency will have jurisdiction until there is an ignition then the fire department would then become the lead agency (City of Philadelphia, 1999). After the fire has been extinguished the local police or federal law enforcement would typically take command of the investigation (Stuebe, 1998). The effective transfer of command will require close coordination of all the agencies involved and emergency plans should detail who is in charge of what situations so that all agencies responding will know what to expect from each other.

Crews from utility companies will be required for the shutdown of electrical, natural gas, and water supply. In the event of an explosion, fallen wires, broken gas and water pipes should be expected. Provisions should be made and additional crews should be available to shutdown these utilities from distant locations from the scene if necessary because valuable time will be lost if the crews at the scene need to be relocated (Ledlow, 2005).

When the incident has stabilized the emergency scene should be surveyed to determine which equipment and manpower can be released. Personnel and equipment must be decontaminated before it is removed from the area (Stephan, 2007). Equipment that cannot be decontaminated should be left for disposal by the agency having responsibility for the cleanup. The area is a crime scene, which will be thoroughly investigated and every effort to maintain the integrity of the crime scene should be employed. The investigation begins with the tracking of victims, and personnel should document their actions on the emergency scene as well as any conditions that they may have observed and this should be done as soon as possible. This information will aid

in the investigation of the crime scene.

The physical and emotional needs of civilians and responders must be assessed throughout the incident and prior to departure. It may be difficult or impossible for some individuals cope with the events that have transpired (Dycus, 1995). Interdepartmental and outside agencies can be used to address these psychological issues (Moultrie, 1998). A post-incident analysis should be conducted to evaluate performance and identify areas that can be improved. This technique obviously has more value when used for simulated training scenarios, than to wait for the actual incident to occur and then try to analyze it. The analysis can identify areas in the formal procedure that may need to be amended, or address areas that may have been overlooked when the procedure was drafted (Bahme, 1992).

Local government authorities must realize that the terrorist threat is real. They must develop and implement written procedures to handle a terrorist attack in their community. They must coordinate with local and national agencies to ensure the proper communication network is in place for the mitigation of these incidents (FEMA, 1993). Finally they must train their employees properly in the use of these procedures and evaluate these procedures on their content and adjust them accordingly (FEMA, 1999).

Procedures

The action research method was utilized consisting of a literature review of relevant material from reputable sources, personal observations and interviews with knowledgeable persons. A literature review (page 5) was utilized to answer research questions (a) what information is necessary to plan a strategy for PFD personnel responding to terrorist incidents at stadium facilities?, (b) what conditions are likely to confront PFD personnel at stadium facilities terrorist incidents?, and (c) what resources are necessary for the proper mitigation of these

incidents? There was sufficient material available in order to provide data to aid in answering these research questions.

Interview 1

Joseph McGraw of the Philadelphia Hazardous Materials Administrative Unit (HMAU) was interviewed on June 18, 2007. The interview took place in his office and was documented by handwritten notes because Mr. McGraw requested that the interview not be tape recorded. Mr. McGraw was selected because he is a recognized expert in the field of hazardous materials incident mitigation and is also responsible for the planning and support functions for theses type of incidents that occur within the boundaries of the City of Philadelphia. The goal of this interview was to help answer research questions; (a) what information is necessary to plan a strategy for PFD personnel responding to terrorist incidents at stadium facilities?, (b) what conditions are likely to confront PFD personnel at stadium facilities terrorist incidents?, and (c) what resources are necessary for the proper mitigation of these incidents?.

The following questions were asked during the interview; what PFD resources are currently available at stadium facilities during scheduled events?, what kind of permanent protection systems are installed in these stadiums to be utilized in the event of a terrorist attack?, and what additional equipment and resources would likely be needed to handle such an event?

Interview 2

Edward Baldini of the Philadelphia Police Major Incident Response Unit was interviewed on June 26, 2007. The interview took place in his office and was documented by handwritten notes because Mr. Baldini requested that the interview not be tape recorded. Mr. Baldini was selected because he is a primary source of information regarding police planning and operations within the City of Philadelphia. His unit is also responsible for command and control of incidents

involving terrorism within the city limits. The goal of this interview was to help answer research questions; (a) what information is necessary to plan a strategy for PFD personnel responding to terrorist incidents at stadium facilities?, (b) what conditions are likely to confront PFD personnel at stadium facilities terrorist incidents?, and (c) what resources are necessary for the proper mitigation of these incidents?

The following questions were asked during the interview; what police department resources are currently available at stadium facilities during scheduled events?, what are the typical duties for these personnel?, does the police department have a written procedure for handling operations at terrorist incidents?, what additional equipment and resources would likely be needed to handle such an event?, and are there any plans for handling the evacuation of a stadium during such an event?

Personal observation of post-incident data

Units in the PFD are required to complete a post incident evaluation form whenever the respond to an incident or exercise involving hazardous materials. This information is stored in the form of unpublished raw data in a records room located at HMAU headquarters. The data was observed on June 19, 2007 and June 20, 2007 over approximately a total of twelve hours. Observations were documented utilizing a data collection form (Appendix B). The information collected was used to answer research questions (b) what conditions are likely to confront PFD personnel at stadium facilities terrorist incidents? and (c) what resources are necessary for the proper mitigation of these incidents?

Personal observation of stadium facilities

Lincoln Financial Field was observed on December 2, 2006. This date was chosen because the stadium was filled to at or near capacity. The goal of this observance was to collect

information regarding; police resources at event, protection systems available for fire department use, access for fire department equipment, and traffic congestion after the event. Observations were documented utilizing a data collection form (Appendix B). The information collected was used to answer research questions (a) what information is necessary to plan a strategy for PFD personnel responding to terrorist incidents at stadium facilities?, (b) what conditions are likely to confront PFD personnel at stadium facilities terrorist incidents?, and (c) what resources are necessary for the proper mitigation of these incidents?

Citizens Bank Park was observed on May 11, 2007. This date was chosen because the stadium was filled to at or near capacity. The goal of this observance was to collect information regarding; police resources at event, protection systems available for fire department use, access for fire department equipment, and traffic congestion after the event. Observations were documented utilizing a data collection form (Appendix B). The information collected was used to answer research questions (a) what information is necessary to plan a strategy for PFD personnel responding to terrorist incidents at stadium facilities?, (b) what conditions are likely to confront PFD personnel at stadium facilities terrorist incidents?, and (c) what resources are necessary for the proper mitigation of these incidents?

Results

A review of literature available regarding response to incidents involving terrorism was conducted and confirmed the need for an operational guideline for handling such an event and also provided answers to all of the the original research questions. Regarding question (a) what information is necessary to plan a strategy for PFD personnel responding to terrorist incidents at stadium facilities?, it was found that stadium facilities should be surveyed to identify the characteristics that might help or impede such an effort. It was also found that necessary

resources must be identified before they are needed and strategy for their efficient deployment must be developed. Finally, responders must be trained on the procedure to ensure understanding and compliance. Regarding question (b) what conditions are likely to confront PFD personnel at stadium facilities terrorist incidents?, it was found that although the mechanism of attack may vary, responders will be faced with a situation involving panic and confusion. The responders must be able to communicate effectively in order to maintain control of the situation. Regarding question (c) what resources are necessary for the proper mitigation of these incidents?, it was found that the necessary resources will vary depending on the method of attack used. Responders must be trained on tactics appropriate for each possible scenario and promptly request the corresponding resources necessary for mitigation.

Interview 1

For the question, what fire department resources are currently available at stadium facilities during scheduled events?, the interviewee responded that hazardous material technicians are used to monitor for radioactive materials in close proximity to the structure. These technicians work in conjunction with the police bomb squad to identify any possible threats. Technicians are not scheduled for every event. Scheduling is for selected events only based on the nature of such an event. The interviewee provided examples of types of events were monitoring took place in the past and that to his knowledge, there are no other fire department resources available on site for scheduled events. Requests for additional resources are accepted from stadium personnel or the police department as needed. For the question, what kind of permanent protection systems are installed in these stadiums to be utilized in the event of a terrorist attack?, the interviewee responded that there are wet sprinkler systems in each of the stadiums primarily designed for fire suppression. These systems could potentially be useful for gross decontamination of large

numbers of people if they could be initiated quickly in key areas. For the question, what additional equipment and resources would likely be needed to handle such an event?, the interviewee responded that the type of resources would depend on the methods used. Regardless of the method a large number of trained personnel and a tremendous amount of protective equipment would be needed to handle a situation of this magnitude. Prompt notification of the proper agencies is essential so that they can bring their resources and expertise to the incident scene.

Interview 2

For the question, what police department resources are currently available at stadium facilities during scheduled events? and the question, what are the typical duties for these personnel?, the interviewee responded that bomb squad technicians monitor vehicles and large containers in selected areas, only during selected events. Undercover officers are used to augment security inside the stadium. Uniformed officers are utilized for crowd control, traffic control and to augment security inside and outside of the stadium. Supervisory personnel are positioned in the stadium's control center to allocate personnel and request additional resources if needed. For the question, does the police department have a written procedure for handling operations at terrorist incidents?, the interviewee responded that since the police department is responsible for managing terrorist incident they do have a written procedure for handling these types of situations. The responsibilities of police personnel are outlined in this procedure and each member of the police department has been trained on the content of the procedure. For the question, what additional equipment and resources would likely be needed to handle such an event?, the interviewee considered crowd control and traffic control to be the biggest issue. Such an event would require a large number of uniformed officers to respond to the location many

coming from distant locations. Most uniformed officers are not issued or trained in the use of protective clothing so they would be available for deployment in areas where there is a hazardous condition present. For the question, are there any plans for handling the evacuation of a stadium during such an event?, the interviewee responded that the individual stadiums are responsible for formulating an evacuation plan. The interviewee admitted that problem is that there is no way to properly instruct all the people inside the stadium regarding the content of the plan and even if you could he believes that in the midst of a panic situation, the people would not follow the plan anyway.

Personal observation of post-incident data

Due to the fact that hazardous material incidents are similar in nature to the results of terrorist incidents, post-incident data was observed from actual responses and drills involving PFD units. The theory was to gain insight on needs for: resources, tactics, techniques, and lessons learned involving these type of incidents and then to extrapolate this data into techniques for handling terrorist incidents. The data indicated that recognizing the hazard involved was the first step to handling the problem. Different hazards require different techniques and resources based on the conditions involved. Once the hazard is identified the proper resources necessary to handle the event must be promptly requested. There is significant amount of time necessary to get the proper personnel and equipment on scene. Reusing the same equipment in contaminated areas when possible will effectively stretch small supplies until reinforcements can be brought to the scene. Communication seemed to be a universal problem regarding these incidents although effective communication is key to the proper mitigation of hazardous material incidents. Finally, as with any emergency scene, the need to stress safe operations was paramount. Tactics that stressed safe operations and the use of the proper safety equipment was credited for the very low

percentage of injuries at these type of incidents.

Personal observation of stadium facilities

The goal of observing both Lincoln Financial Field and Citizens Bank Park was to collect information regarding; police resources at events, protection systems available for fire department use, access for fire department equipment, and traffic congestion after the events. At both locations it was observed that uniformed police officers were mainly utilized for crowd control and traffic control outside of the stadium. Wet sprinkler systems were installed throughout the stadium and the fire department connections were unobstructed and easily accessible. Traffic was heavy before the event start time and became very congested after the event. Crowds and traffic exiting the complex would provide serious access problems for fire department equipment under normal conditions. In the event of a mass exodus, it would be very difficult to position equipment close to the stadium itself. Staging areas may have to be set up at a distant location from the scene itself.

Discussion

Fire (1996) identified several different mechanisms for terrorist attack. Manning (1995) and FEMA (1993) agreed that emergency responders would most likely be the first to arrive on the scene of these types of incidents regardless of the method used and that these emergency responders need to be prepared to face them. Both Manning (1995) and FEMA (1999) stated that prudent response procedures go far beyond the normal experiences of these responders.

Massa (1995) and Bahme (1992) agreed on the need for a pre-incident analysis of possible targets. Bahme (1992) and Bartlett (2005) placed greater emphasis on the need for a viable standard operating guideline. Bartlett (2005) further explained that proper training is necessary to implement these procedures and identify the proper protective clothing and equipment

required.

Stuebe (1998) recognized that personnel responding must begin to gather information and process this information for its importance regarding the incident and that this process must continue throughout the duration of the incident. The data observed from prior PFD incidents agreed with Stuebe (1998) in that recognizing the hazard involved was the first step to handling the problem because different hazards require different techniques and resources based on the conditions involved. This information must also be communicated to arriving units and the communication center. Clues are available such as the number and condition of the victims and the incident may consist of a combination of several incidents in one (Stuebe, 1998).

Normal mediums of communication may not be possible if explosives are suspected (Stewart, 2006). McGraw (interview, June 18, 2007) pointed out both the incident commander and the communication center must be aware of the proper and that this notification must be according to a predetermined procedure. Prompt notification of the proper agencies is essential so that they can bring their resources and expertise to the incident scene.

Both Stewart (2006) and Manning (1995) recognized the importance of a command post that was in an area that is relatively close to the incident but not effected by the incident. This command post is where command and communications are maintained and serve as a central location for the mustering of representatives from other agencies. Compton (2002) and Hansen (1995) stressed the need to utilize an incident management system to handle the complexity of these incidents.

Bahme (1992), Salyers (2007), and Dittmar (1998) all agreed that the proper positioning of responding equipment and personnel is an important concern. Salyers stated that traditionally the staging area is located in an area away from the dangers of the incident and is a mustering

area for equipment and manpower. Bahme (1992) added that at a terrorist incident an additional concern will be the threat of attack in these areas, therefore the incident commander may need to use multiple staging areas to limit the threat of having all of the reserve manpower and equipment exposed to additional attacks. Personal observation of stadium areas revealed that staging areas may have to be set up at a distant location from the scene itself. Dittmar (1998) considered that a sequence of events, carefully timed to also sabotage the response effort must always be considered. This sequence could include secondary devices, booby traps, and armed resistance (Dittmar, 1998).

Paxton (2005) considered the rescue and evacuation of individuals to be manpower intensive and require a closely coordinated effort. He didn't consider it feasible initially to get involved in rescue operations, rather he suggested that an area be set up for those contaminated, with subsequent medical treatment to follow. Stephan (2007) disagreed from the standpoint that the emergency decontamination process was the single most important task during a terrorist incident. Scott (2006) offered the idea that emergency decontamination utilizing simple water lines used as showers to dilute the contaminate can be employed until more sophisticated decontamination procedures can be established. McGraw (interview, June 18, 2007) refined this concept suggesting the potential use of sprinkler systems for gross decontamination of large numbers of people if they could be initiated quickly in key areas.

Salyers (2007) and Stuebe (1998) stressed establishing a priority for removal of victims. They suggested that mobile victims should be directed away from the effected area and valuable manpower should be used to get as many victims away from the area as soon as possible. Following this concept, Baldini (interview, June 26, 2007) said that police may be useful in the evacuation effort, but they typically do not have access to adequate training, protective clothing

and equipment. He further explained that most uniformed officers are not issued or trained in the use of protective clothing so they would be available for deployment in areas where there is a hazardous condition present. Personal observation of PFD data revealed that reusing the same equipment in contaminated areas when possible will effectively stretch small supplies until reinforcements can be brought to the scene. For example, the use of wheeled or skid stretchers will be invaluable because they can be kept in the contaminated area and re-used for multiple patients without the need for decontamination after each use. This will result in reducing the amount of equipment dedicated to this evolution and save valuable time in the decontamination process.

An efficient procedure for the triage, treatment, and transport of victims at the scene of a mass casualty incident was addressed by Bartlett (2005) and Ledlow (2005). Bartlett (2005) placed more emphasis on the coordination between units at the scene, employees at the communication center, and health care professionals at the hospitals. Ledlow (2005) emphasized incident tactical considerations. Moultrie (1998) was concerned about the health of responders themselves. He addressed comfortable rest and rehabilitation areas and the medical assessment of these personnel.

The dynamic nature of terrorist incidents and therefore the need for command transfers were addressed by Stuebe (1998) and Baldini (interview, June 26, 2007). Command of the incident may be transferred between individuals having the authority in the same agency or between different agencies responding, depending on the changing conditions. The effective transfer of command will require close coordination of all the agencies involved. Both sources agreed that Emergency plans should detail who is in charge of what situations so that all agencies responding will know what to expect from each other.

Dycus (1995) stressed the need to address the physical and emotional needs of civilians and

responders. Moultrie (1998) made the point that there are departmental and outside agencies can be used to address these psychological issues. Bahme (1992) added that the health of department operations can be maintained by conducting a post-incident analysis to evaluate performance and identify areas that can be improved.

Recommendations

The problem is that the Philadelphia Fire Department (PFD) does not currently have a standard operational guideline (SOG) for responding to terrorist incidents at stadium facilities. By not having a SOG, responding units and personnel are subject to elements of confusion thus limiting their effectiveness at these types of incidents. The purpose of this research was to develop a SOG in the PFD for the response to acts of terrorism in stadium facilities. The research conducted confirmed the need for a SOG for responding to incidents involving terrorism in order to effectively manage these types of incidents.

Local government authorities must realize that the terrorist threat is real and they must support the development and implementation of written procedures to handle a terrorist attack in their community. They must coordinate with local and national agencies to ensure the proper communication network is in place for the mitigation of these incidents. Finally they must train their employees properly in the use of these procedures and evaluate these procedures on their content and adjust them accordingly.

The support and vision of the PFD administration will be critical to the adoption of this procedure and its associated training initiative. The organization must be committed to devoting valuable resources, in terms of long term budgeting and its inclusion in the organizational strategic plan, toward this program realizing that it is essential to efficient operations. They must also be vigilant in ensuring that this procedure is implemented and evaluated within a six

month time frame. Analyzing the current situation in the PFD, the administration should capitalize on the recent success of changes to other operational guidelines regarding the positive feedback that has resulted from the way that these changes have been implemented. Furthermore the administration should expect some resistance from implications that this new procedure will limit the organizations control at the incident scene. The message must be clear that this new procedure will increase efficiency and not limit the abilities of the members on the incident.

A committee comprised of knowledgeable persons should be commissioned for the purpose of instituting this training initiative and this committee should first identify the learning objectives necessary to understand the content of the procedure. A curriculum can then be developed which supports the learning objectives that were identified.

This training initiative can be evaluated utilizing the existing PFD training program evaluation procedure and infrastructure. The PFD evaluation procedure briefly consists of elements such as course review, course evaluations, instructor and student recommendations, and modification as necessary. In addition to normal review, any applicable federal, state, or local requirements that may be instituted in the future should be reviewed and incorporated into the curriculum in order to ensure compliance.

It is also recommended that future research regarding this subject should concentrate on the specifics of a single type of incident at a designated location. The researcher could go into much greater depth and detail than was feasible in this research effort.

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Appendix A

Philadelphia Fire Department

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Subject: Incidents Involving Terrorism At Stadium Facilities

1.1 Rationale

1.2 Although the Philadelphia Police Department is responsible for handling of terrorist incidents within the borders of the City of Philadelphia, the Philadelphia Fire Department as first responders must be able to properly mitigate these incidents in order to minimize the effects on the area involved and the potential effects beyond the initial emergency scene.

2.1 Mechanisms of attack

2.2 Terrorists can use biological, nuclear, incendiary, chemical, or explosive (B-NICE) weapons to achieve their desired goals.

2.3 These threats go far beyond the usual ones associated with residential fires, vehicular accidents, or even hazardous materials incidents. It is critical that emergency responders understand the implications of these modern threats and know proper response procedures and the limits of safe and prudent response. This knowledge will help prevent further fatalities. Injured or incapacitated responders are no help to anyone.

3.1 Pre-incident Analysis

3.2 Each company will survey their local district to determine the presence of a stadium facility. All stadiums will be preplanned and approved plans will be distributed to all companies designated for response within the second alarm.

4.1 Communications

4.2 Companies responding to incidents involving stadium facilities shall inform the Fire Communications Center of conditions present upon arrival and the need for additional resources in accordance with Directive #42, Fire Department Communications.

4.3 The Fire Communication Center will make the necessary notifications in accordance with the City of Philadelphia Emergency Operation Plan and incorporate resources available from the state and federal government, the military, public health agencies, and local, state and federal law enforcement agencies.

5.1 Training

5.2 A simulated response exercise will be scheduled on an annual basis by the Deputy Chief of the division involved. All companies up to and including the second alarm will attend.

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5.3 Upon completion of this exercise a post incident analysis will be conducted.

6.1 Size-up

6.2 Personnel responding must begin to gather information and process this information for its importance regarding the incident. This process must continue throughout the duration of the incident. The key will be to recognize the hazards present in this type of incident and communicate this information to arriving units and to the Fire Communication Center.

6.3 Clues such as the number and condition of the victims present can help identify the type of incident involved. The incident may consist of a combination of several incidents in one.

6.4 Strategy and tactics

6.5 After arrival on the scene and completion of the first phase of size up, the Incident Commander will develop a Strategy and an Action Plan. The Strategy must prioritize for Life Hazards, Stabilization, Property Protection, and Safety. The Strategy developed must constantly be re-evaluated in terms of effectiveness and a risk analysis.

6.6 The manpower available on the initial response and the availability of proper protective clothing and equipment will be critical factors. It may be necessary to await the arrival of additional resources before you can attempt to enter the hazardous area. The plan must be communicated to arriving companies.

7.1 On-Scene Communications

7.2 Normal mediums of communication may not be possible if explosives are suspected. For example, portable radios and cell phones operate on frequencies that can trigger a detonation and therefore should be turned off for at least a distance of 500 feet from a suspected device.

7.3 Control will be difficult at best due to the conditions experienced. Regardless, control is essential. Give specific orders to limit confusion and to prevent freelancing. Have the orders repeated back to ensure understanding.

7.4 Available resources must be managed effectively and assistance must be requested promptly. Terrorist incidents will be manpower intensive incidents. A thorough knowledge of available equipment is essential.

8.1 Incident Command

8.2 Command of the incident will be instituted in accordance with the City of Philadelphia Emergency Operations plan and Operational Guideline #19, Philadelphia Incident Command System.

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8.3 The Command Post must be in an area that is relatively close to the incident but not effected by the incident. It must be located in what would be the "cold zone" or outside the expected damage perimeter for an explosive. This will be where communications are established and maintained; activities coordinated; feedback evaluated; and strategy and tactics modified or supplemented. It will also serve as a central location for the mustering of supervisors from other agencies. This will facilitate the coordination of activities for a multi-agency response.

8.4 The emergency scene must be divided into manageable sections of responsibility. The method used will depend on the type of incident involved.

8.5 The typical zoning (Hot, Warm, and Cold) used for Hazardous Material Responses will be effective for Biological, Nuclear, or Chemical threats. For Explosive or Incendiary Attacks a system utilizing an exclusion zone appropriate for the danger involved may be needed.

9.1 Apparatus Positioning

9.2 The staging area for apparatus will be located in an area away from the dangers of the incident and will be a mustering area for equipment and manpower. At a terrorist incident an additional concern will be the threat of attack in these areas. The Incident Commander should give consideration to using multiple staging areas to limit the threat of having all of the reserve manpower and equipment exposed to additional attacks.

10.1 Rescue

10.2 The rescue of affected individuals and the evacuation of individuals in close proximity will be manpower intensive and require a closely coordinated effort. It may not be feasible for the initial arriving companies to get heavily involved in rescue operations. It will be difficult at best to control the exodus of victims from the area involved but every effort must be employed to ensure that this is accomplished. This could entail establishing an area of safe refuge for those contaminated, which will set the stage for subsequent medical treatment.

10.3 The emergency decontamination process may be the single most important task that the public safety community can perform during a terrorist incident. Depending on the exposure, an emergency decontamination station consisting of simple water lines used as showers to dilute the contaminate can be employed until more sophisticated decontamination procedures can be established.

10.4 Police may be useful in the evacuation effort, but they typically do not have access to adequate training, protective clothing and equipment. A decision must be made whether or not to fully evacuate certain areas or to use a protect in place strategy.

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11.1 Evacuation

11.2 Evacuation from certain areas may cause more exposure to the dangerous condition. Civilians protected in buildings must be continually monitored to assess their safety level.

11.3 A priority for removal of victims from the affected area must be established. Mobile victims should be directed away from the effected area and then to the evacuation and medical assessment areas. Initially, avoid committing valuable manpower to those that are not ambulatory. The goal will be to get as many victims away from the area as soon as possible. Upon the arrival of additional manpower and equipment the effort can move towards removal of more critical non-ambulatory victims.

11.4 The use of wheeled stretchers or rescue sleds will be invaluable. These stretchers can be kept in the hot zone and re-used for multiple patients without the need for decontamination after each use. This will result in reducing the amount of equipment dedicated to this evolution and save valuable time in the decontamination process.

11.5 Once the area has been determined to be reasonably safe the operation will move towards the rescue of trapped individuals, and then towards a body retrieval effort. This effort is best accomplished by specialized units and supplemented by police cadaver dogs.

12.1 Treatment

12.2 The triage, treatment, and transport of victims at the scene of a mass casualty incident will be conducted in accordance with Operational Guideline #35, Multiple and Mass Casualty Incidents.

12.3 Area hospitals will also be alerted in accordance with this procedure so that they can prepare for incoming patients. These incidents require precise coordination between units at the scene, employees at the communication center, and health care professionals at the hospitals. Information pertaining to the treatment already provided, and available resources at the hospitals will be critical to the well being of those affected.

12.4 Areas will be dedicated to the rest and rehabilitation of the responders. They should be in a safe area and designated according to the prevailing weather conditions for warm up or cool down. Responders should have access to food and fluids. Trained medical personnel will monitor their vital signs and assess their medical and mental condition.

13.1 Command Transfer

13.2 Terrorist incidents are dynamic by nature. Command of the incident may be transferred between individuals having the authority in the same agency or between different agencies responding, depending on the changing conditions.

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13.3 The agency having command will be the lead agency. In accordance with the City of Philadelphia Emergency Operations plan, the Philadelphia Police Department will have jurisdiction at a terrorist incident.

13.4 The Philadelphia Fire Department is responsible to mitigate any ignition, hazardous material or emergency medical condition at the scene.

13.5 After the incident has been placed under control, the police or federal law enforcement will take control of the investigation.

14.1 Utilities

14.2 Crews from utility companies will be required for the shutdown of electrical, natural gas, and water supply.

14.3 In the event of an explosion, fallen wires, broken gas and water pipes should be expected. Provisions should be made and additional crews should be available to shutdown these utilities from distant locations from the scene if necessary. Valuable time will be lost if the crews at the scene need to be relocated.

15.1 Demobilization

15.2 When the incident has stabilized the emergency scene should be surveyed to determine which equipment and manpower can be released.

15.3 Personnel and equipment must be decontaminated before it is removed from the area. Equipment that cannot be decontaminated should be left for disposal by the agency having responsibility for the cleanup.

15.4 The area is a crime scene, which will be thoroughly investigated. Every effort to maintain the integrity of the crime scene should be employed.

16.1 Investigation

16.2 The investigation begins with the tracking of victims, and personnel should document their actions on the emergency scene as well as any conditions that they may have observed. This should be done as soon as possible. This information will aid in the investigation of the crime scene.

17.1 Debriefing and Recovery

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17.2 The physical and emotional needs of civilians and responders must be assessed throughout the incident and prior to departure. It may be difficult or impossible for some individuals cope with the events that have transpired. Interdepartmental and outside agencies can be used to address these psychological issues.

18.1 Post-incident analysis

18.2 A Post-incident Analysis will be conducted to evaluate performance and identify areas that can be improved. The analysis can identify areas in the formal procedure that may need to be amended, or address areas that may have been overlooked when the procedure was drafted.

19.1 References

19.2 City of Philadelphia Emergency Operation Plan.

19.3 Directive #42, Fire Department Communications

19.4 Operational Guideline #02, Hazardous Material Incidents

19.5 Operational Guideline #19, Philadelphia Incident Command System.

19.6 Operational Guideline #35, Multiple and Mass Casualty Incidents

Appendix B

Personal Observation Data Collection form

Date:

Subject:

Location:

(a) What information is necessary to plan a strategy for PFD personnel responding to terrorist incidents at stadium facilities?

(b) What conditions are likely to confront PFD personnel at stadium facilities terrorist incidents?

(c) What resources are necessary for the proper mitigation of these incidents?

Notes: